Information Technology Services

State of Iowa

January 2000

Organization Structure of an Information Technology Department: A Condensed Version

Ancillary Report & Recommendations

Submitted by the Information Technology Transition Team to the Legislative Oversight Committee on October 15, 1999.

The intent to create an Information Technology Department was stated by the 1999 Iowa General Assembly in HF 762. A Transition Team was established to address issues related to planning and operating an IT department. The Transition Team contracted with State Public Policy Group for process facilitation services and the Center for Digital Government to research and develop a set of recommendations on the structure and organization of a state information technology department.

This document provides readers with the results of the efforts of the Transition Team and CDG. Additional copies of these materials may be obtained by contacting:
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Full text of the reports may be found on the web at: www.state.ia.us/government/its/

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Organization Structure of an Information Technology Department: A Condensed Version

This condensation of the *Organization Structure of an Information Technology Department* provides interested parties a concise document from which to glean the salient points of the full report. It is not a summary; rather, this condensed version presents an overall view containing complete thoughts and recommendations lifted from the full report.

To aid the reader, key points have been drawn from the condensed version and highlighted in the narrow column at the edge of each page to serve as a guide to the contents of each page.

Definition of Information Technology:

Information Technology means electronic data processing goods, services, and systems and telecommunications goods, services, and systems, including microprocessors, software, information processing, office systems, any services related to the foregoing, and consulting or other services for design or redesign of information technology supporting business processes.

(adapted from North Carolina Senate Bill 222, section 143b-472.40A)

Acronyms

CIO	Chief Information Officer
DGS	Department of General Services
ETC	Education Technology Council
IAC	IOWAccess Advisory Council
ICN	Iowa Communications Network
IPTV	Iowa Public Television
IT	Information Technology
ITC	Information Technology Council
ITD	Information Technology Department
ITMC	Information Technology Management Council
ITS	Information Technology Services
ITTC	Iowa Telecommunications and Technology Commission
R & D	Research and Development

Introduction

In House File 762, the General Assembly stated their intent to create an Information Technology Department (ITD). The ITD would include four divisions — Planning, Security and Standards; Customer Support and Training; Finance and Administration; and Information Technology Operations. The mission of the ITD would be "to foster the development and application of information technology to improve the lives of Iowans."

The legislature passed H.F. 762 in 1999, stating its intent to create an Information Technology Department (ITD).

Following passage on July 7, 1999, Gov. Vilsack issued a supportive letter to department heads setting forth the administration's goal "to provide government information and services to Iowans when and where it is convenient."

Later that same year, the Governor expressed his support for a new ITD. Both cited using technology to improve the lives of Iowans as their central goal in creating the ITD.

Section 1:

Developing Iowa's Information Technology Department

The Transition Team agreed that the moment is right, the politics support and the governor desires that the creation of an Information Technology Department (ITD) occur in one step. The following table compares the historic and future Iowa IT environment as envisioned in this report.

The Transition Team supports the creation of an ITD in one step.

Historic Environment	Future Environment	
Systems	Closed, proprietary	Open, interoperable, portable
Planning	Agency specific, often "reinventing the wheel"	Builds on the success of others
Resource Utilization	Volatile, suboptimal	High
Application Development	Ad hoc, limited reusability	Reusable software, continuous quality improvement
Architectures	Diffuse, eclectic	Standardized
Procurement	Agency Specific	Leveraged through aggregation
Training	Agency Specific	Standardized and leveraged
Maintenance and Support	Agency Specific	Standardized contracts and approaches

Reference: State of Washington IT Strategic Plan

The Transition Team agrees that the present environment is right to create an Information Technology Department.

A. Recommended Structure for the New Information Technology Department

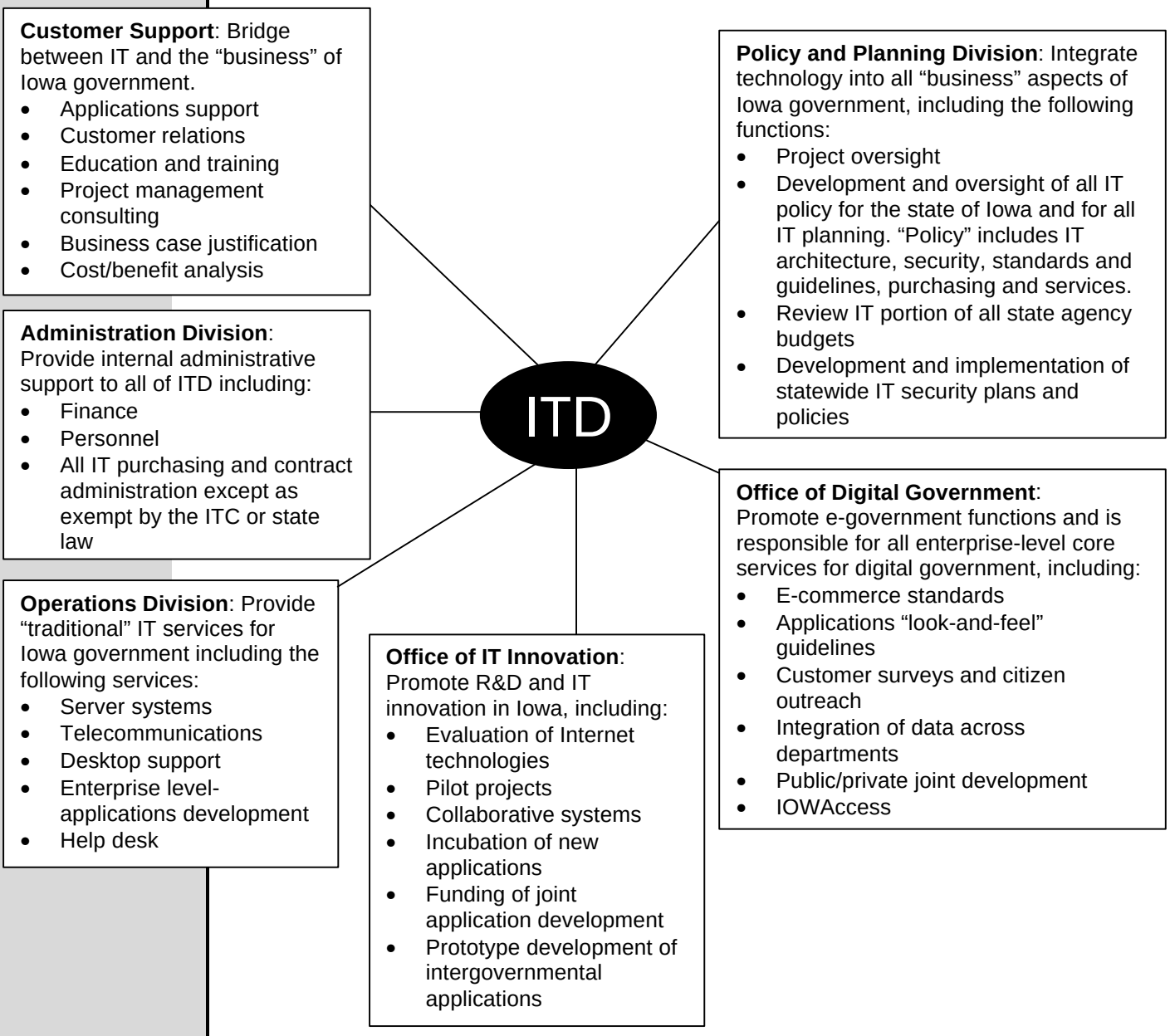
1. An Information Technology Department (ITD) should be created effective July 1, 2000; and

2. The mission of this department should be to foster the development and application of information technology to improve the lives of Iowans.

ITD created by 7/1/2000.

ITD Director:
- *named by governor and confirmed by Senate;*
- *Designated as the state CIO.*

- The director of the ITD should be appointed by the Governor and be subject to confirmation by the Senate.
- The ITD director should also have the title and functions of Chief Information Officer (CIO) for the state of Iowa, with all of the authority and responsibility that implies. (For details, see the discussion in Sections 4, 5, 7, 9, 10, and 12.)
- We recommend the administrators who head the various divisions and offices within ITD serve at the pleasure of the ITD director, without definite term of office.
- The ITD should be comprised of the following organizational units:



3. An IT Innovation Fund should be established to support projects which fall outside the scope of mainstream agency missions.

   - An IT Innovation Board under the auspices of the Information Technology Council should be established to manage the IT Innovation Fund and make grants from it as appropriate. Membership on the IT Innovation Board should consist of the CIO/ITD Director, the director of the Department of Management, the chairpersons of the IOWAccess Advisory Council and the Information Technology Management Council and others to be determined by the Information Technology Council.

Research and development is recommended as a function of the state ITD; funding comes from the new IT Innovation Fund.

4. Integration of the Information Technology Services (ITS) division of the Department of General Services and the Iowa Communications Network (ICN) into an ITD, and transfer employees and functions of other parts of Iowa government including support personnel from Iowa Public Television (IPTV).

An integration into ITD of existing functions from DGS, ICN, and IPTV.

5. Core program production functions of IPTV should remain intact as a separate autonomous unit per FCC requirements. However, recognizing a long history of legislative and financial decisions in creating and supporting the ICN, the ICN should be moved into the new ITD and its staff assigned to the functional units as their skill dictates.

Per FCC regulation, core IPTV functions remain autonomous.

6. The executive director of IPTV and the director of ITD should determine the specific IPTV technical support functions and personnel best transferred to ITD.

7. Applications software development and maintenance should continue to be done as it is now by the various government departments whose specific missions the software supports. However, the ITD should oversee, coordinate and assist these efforts, and responsibility for development and maintenance of enterprise-level systems and infrastructure, such as IOWAccess, should reside with the ITD.

ITD has responsibility for development and maintenance of enterprise-wide software.

8. An Information Technology Council (ITC) should be created and should consist of 15 to 20 members appointed to provide a diversity of interest, educational background, and experience.

   We recommend broadening and strengthening the authority of the ITC to make it the principal decision-making body for all aspects of IT in Iowa government, superseding the governance structures presently operating under Section 8D of the Iowa Code. We envision the following membership for the ITC:

   - The CIO/director of the Information Technology Department;
   - The executive director of Iowa Public Television;
   - Up to four legislative members (ex officio), two from each house, appointed by the legislative leadership;
   - A representative of Iowa courts, appointed by the chief justice;
   - Two executive branch department heads, appointed by the governor;

Creation of Information Technology Council as the principal decision making body for Iowa IT.

- Two education representatives, including the chairperson of the Education Technology Council and an additional representative, appointed by the governor, to assure one representative from K-12 and one from higher education;
- The chair of the Federal Executive Council;
- The chairperson of the Information Technology Management Council;
- *The chairperson of the IOWAccess Advisory Council; and *Three "citizen" representatives (including a private industry representative).

* *Appointed by the governor and confirmed by the Senate. The "citizen" members should serve (staggered) six-year terms and the other appointees should serve at the governor's pleasure.*

Councils needed as advisory bodies:
- *Iowa Telecommunications and Technology Commission — ITTC;*
- *Education Technology Council — ETC;*
- *Information Technology Management Council — ITMC;*
- *IOWAccess Advisory Council — IAC;*
- *Other.*

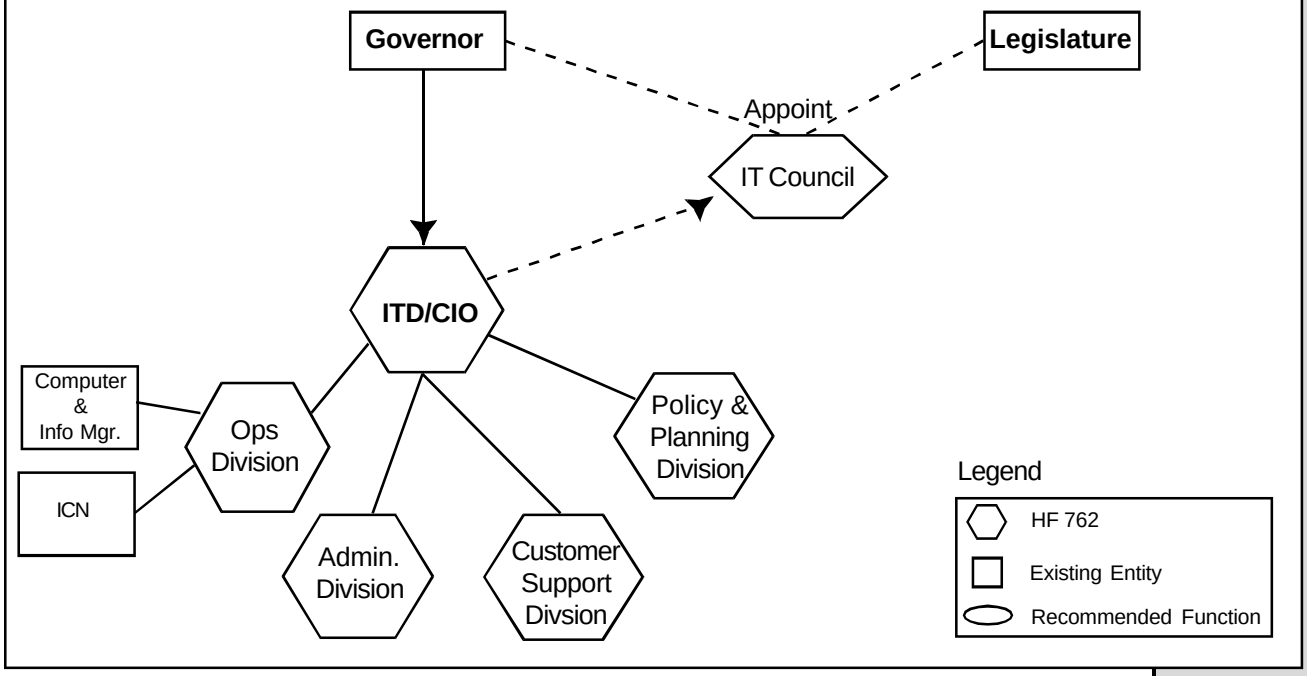
9. The Iowa Telecommunications and Technology Commission (ITTC) should be continued as an advisory council to the Information Technology Council (ITC). Additional councils are needed as follows:

   - **Education Technology Council (ETC)** — Continue to advise on issues related to the ICN, albeit with scope expanded to include all activities of the ITD.
   - **The Information Technology Management Council (ITMC)** – ITMC be continued, but function as a customer advisory council, with formalized membership and attendance requirements. The role would be to share IT lessons learned among "working level" IT users and to coordinate communications between these users and ITD.
   - **The IOWAccess Advisory Council (IAC)** — We recommend legislation be enacted to institutionalize this council. We recommend that the purpose of the IAC be amended to read: "to advise the CIO and the ITD Office of Digital Government." We suggest the IAC hold semi-annual town meetings throughout Iowa to inform citizens about ITD plans and activities and to solicit citizen ideas and feedback.
   - **Other advisory councils** – At the option of the ITC, the other advisory councils, groups and committees specified in sections 8D.6 and 8D.7 of the Iowa Code and those established by administrative rule could continue to function, perhaps with scope broadened from "telecommunications" to "information technology".

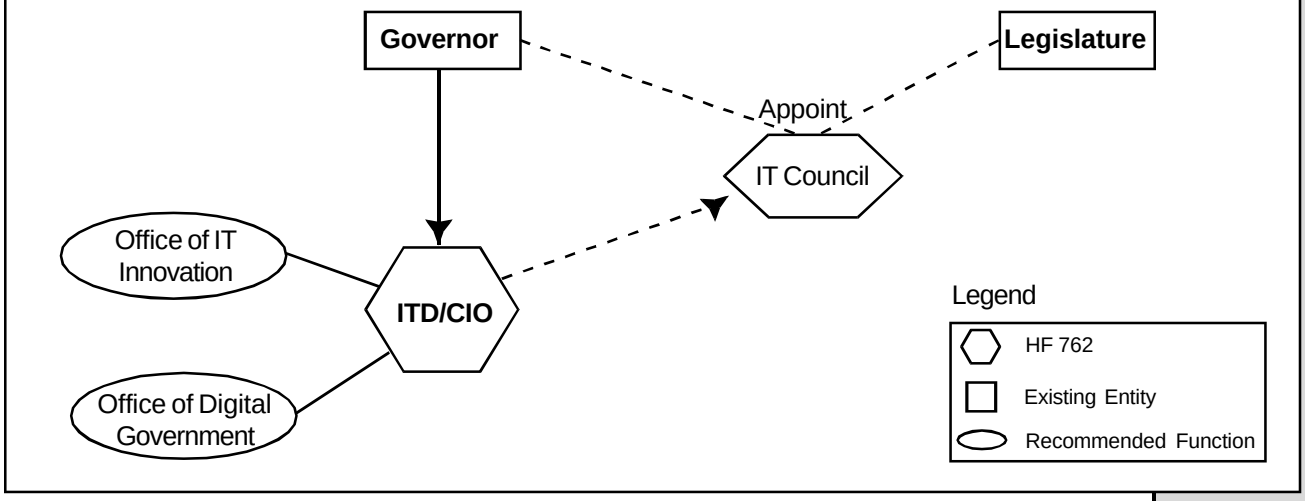
10. Regardless of the history of these advisory groups, their priorities should be advice on the coordination of IT policy first and ITD operations second.

A Visual Representation of the Organization Structure Recommended

1. Recommended organization structure based on existing entities and HF 762.



2. Additional new units recommended in this report.



The state should establish a Transition Office with specific teams to address specific transition and communication issues.

B. Transition Plan for Establishing the ITD

We suggest that the ITD establish a Transition Project Office composed of specific teams to address key elements of the transition process. This should include a Communications and Outreach Team that provides regular reports on transition developments. Other teams would focus on maintaining Y2K focus, provide mediation of issues arising from the merging of entities into the ITD, strategic planning, and any area which required attention to facilitate the transition.

Transition Strategy

The Transition should occur in four distinct phases:

- *Establish leadership;*
- *Build trust;*
- *Expand and innovate;*
- *Conquer new worlds.*

Phase One: Establishing Leadership

The first thing to be done in implementing the above recommendations is to create a mechanism for setting priorities and making decisions. This means appointing a CIO/director of the Information Technology Department, hiring the four division administrators and the two office administrators and establishing the Information Technology Council. This should happen as soon as possible.

With these elements in place a strategic planning initiative can be undertaken to further guide the transition.

Phase Two: Building Trust

In the larger scheme of things, trust is the single most important element in leadership. Trust is built upon credibility which results from demonstrated competence. In the Iowa situation, this means that the first priority of the ITD team – the CIO, the division administrators, and the ITC – should be fixing what is broken. Our discussions with Iowa stakeholders suggests that this will center around melding ITS, the ICN, and a small part of IPTV into a seamless service organization, with a single help desk to facilitate quick and effective problem resolution for users.

- Professional change management specialists should be retained to facilitate this process.

- The goal will be to bring IT services to something approaching “world-class” levels, at least in the core areas of servers, communications and desktop systems.

- The CIO and the ITC should consider having an in-depth “benchmark” study conducted by a professional organization specializing in this area. This will enable the CIO and the ITC to determine where change is needed most and where there are existing strengths. It will also enable the CIO and the ITC to assess progress and to report to the Legislature.

- The CIO should give as much attention as possible to establishing the Policy and Planning Division, the Customer Support Division and the Office of Digital Government within the ITD.

The greatest risk in Phase Two will come from attempting to do too much. The CIO and the ITC should pick only a few problems to tackle at first, using the criteria (a) what must be fixed most, and (b) what can be successfully completed relatively quickly.

- One or two projects which are (i) relatively short term, (ii) almost certain to be successful and (iii) highly visible should be given early priority in order to give the CIO, the ITD and the ITC some "early wins" which can boost staff morale and user confidence.

Phase Three: Expansion and Innovation

The CIO and the ITC can get on with addressing areas that aren't "badly broken" and integrating them into the smoothly functioning ITD framework. These include the education and training function and the competency centers, as well as the activities of the Office of IT Innovation. Phase Three can probably begin in late 2001 or early 2002.

Phase Four: Conquering New Worlds

When all of these activities are functioning smoothly, the reorganization will be finished. However, by then user needs will have evolved, and new generations of technology will have come and gone, all of which will combine to create exciting new opportunities and challenges for ITD and Iowa government.

Transition Tactics

October – December activities focus on identification and assessment of resources and skills.

October 1999

- The Transition Team presents plans and recommendations to the Oversight Committee.
- The Oversight Committee, Gov. Vilsack and Transition Team begin to discuss potential legislative issues, develop shared interest in advancing the policy to create the ITD/CIO and further refine their mutual goals.
- Combined budgets for ITS and ICN are submitted to the Department of Management.
- With Department of Personnel, perform a gap analysis of needed skills vs. current skills and begin to identify the staff to be transferred into ITD.
- Establish Transition Project team in CIO's office.

November 1999

- Department of General Services begins process of addressing space planning for the physical consolidation of the various entities' staffs, equipment and infrastructure.
- The CIO, in consultation with the Department of Personnel, needs to determine personnel shortfalls and redundancies and develop a plan, to retrain staff, hire additional persons, and/or contract with private firms to meet the shortfalls.
- ITS, ICN and IPTV identify all contracts, services, and other administrative activities that need to be integrated within the Administration Division of ITD including a shift of procurement authority to the Administration Division of ITD.
- Begin coordinating ITD plans and goals with the governor's Vision 2010 activities.
- Begin bill-drafting process.

December 1999

- Complete all executive branch program and budget recommendations.
- Transition Team and Oversight Committee continue outreach activities with legislators and stakeholders.
- Internal and external resources for staff retraining are identified.
- Plans are developed for relocation of personnel.

January – April activities focus on the passage of legislation creating the ITD and preparing staff, agencies and other stakeholders for the transition.

January 2000
- Governor releases program and budget recommendations.
- Strategic planning commences and alignment with Vision 2010 Council continues.
- Candidates for ITC and other council appointments are identified.
- Testimony prepared and presented to legislative committees.

February 2000
- Staff retraining begins.
- Technology event is held that creates additional learning opportunities.
- Continue legislative processes, gain stakeholder support.

March 2000
- Job openings for additional staff are posted and/or RFPs are issued for private firms.

April 2000
- Legislation and appropriations are passed and signed to create the ITD.

May – July activities focus on beginning the integration of the ICN, ITS, parts of IPTV and other agency functions deemed appropriate. This includes orientations and additional outreach and communications. By July, the ITD is open for business.

May 2000
- The CIO and the administrator of the Operations Division begin discussions for "benchmarking" studies.
- Migration to new department divisions/offices begins.
- Personnel plans are implemented including orientation for all staff.
- Any necessary administrative rules are identified.
- Plans for personnel relocation are implemented.
- Identification and/or clarification of Vision 2010.

June 2000
- Orientation retreat.
- Any additional outreach or communications needed continue.

July 2000
- ITD officially "opens for business."
- ITC holds first meeting to begin addressing issues and needs identified from the retreat.
- We expect that at least one full year will be required to "fix what is broken," perhaps longer, if the "benchmark" study reveals that the problems are more serious than we suspect.

C. Potential Savings Resulting from the Creation of the Information Technology Department

Potential Savings from ITD:
- *Eliminate duplication and redundancy;*

The first and most obvious area of potential cost savings from centralizing IT operations into ITD is the elimination of duplication and redundancy inherent in the existing decentralized structure:
- Duplicate databases.
- Server systems located throughout government agencies.

Experience has amply demonstrated that centralized operation of these systems can lead to substantial savings in personnel, equipment and software licenses.

- *Economies of scale;*

The second potential savings is in economies of scale:
- Gain better pricing and contract terms from vendors.

- Standards help create the conditions where economies of scale can be realized, not only through quantity purchasing but also through increased productivity resulting from reduced scope and complexity for users (thereby lowering training costs) and support personnel (i.e. help desk staff, field maintenance staff, etc.).

Beyond cost savings is the larger issue of return on investment (ROI).

- Cost avoidance.
- "When the computer on my desktop isn't working, I'm not working."

• Return on investment;

Discussions revealed that the ratio of desktop systems to support staff is about 90 to one in some agencies. This is well outside the "optimal" ratio of between 40 to one and 70 to one. Bringing Iowa government desktop support into this range would not result in any cost savings; however, the return on investment in the form of eliminating lost worker productivity could be quite significant.

Other areas of potential cost saving are:

• Other.

- Improved success in meeting IT project goals.
- Reduction or outright elimination of duplicative and/or conflicting IT projects.
- Some cost savings from IT reorganization in Iowa government accrue directly to the citizens, rather than to government operations.
- An accepted method for monitoring the outcomes of IT reorganization is to implement a benchmarking program to measure progress toward specific outcomes.

D. Additional Transition Issues

Outreach to stakeholders identified concerns and goals.

Considerable effort was put into meeting with stakeholders throughout Iowa in order to learn their concerns, expectations and goals. What was learned is summarized below.

Problems to be Fixed

Problems:
• IT service;

1. IT services.
   - Response to service requests and service problems.
   - Short-handed in critical areas.
   - Staffs lack adequate training in key areas of technology.
   - Customer relationship management is inadequate. Lack of coordination between ITS and ICN.
2. IT incompatibilities.
   - The inability of state agencies to exchange e-mail messages.
   - Inability to share other documents and data among state (and local) agencies.

• IT incompatibilities;

3. Duplication of resources.
   - Economies of scale in hardware, software and staff are being missed.
   - Little or no sharing of "lessons learned" among agencies.

• Duplication of resources;

4. Lack of vision.

• Lack of vision.

Opportunities to be Seized

Opportunities:
• Direct service to the citizen;
• Citizen engagement;
• Lifelong learning.

1. Direct service to the citizen.
2. Citizen engagement.
3. Lifelong (distance) learning.

Assets and Constraints:
- *ICN;*
- *IOWAccess;*
- *Iowa traditions.*

Special Assets and Constraints

1. The Iowa Communications Network (ICN).
2. IOWAccess.
3. Iowa traditions.
   - High priority for education and egalitarian access to public resources.
   - Using multiple advisory boards to gain involvement of persons and groups at all levels in governmental decision making.

Section 2:

"Best of Breed" IT Organizations & Principles

Cost of savings is driving private sector electronic commerce.

The reason that more and more enterprises are turning to the Internet to engage in electronic commerce is because of the dramatic savings. The cost of everyday transactions falls between 50 percent to more than 90 percent when carried out electronically in real-time. From the individuals' points of view, today's technology offers immediate access to information, the ability to transact daily affairs when they choose, and an easy-to-understand interface to complicated data. Three important ideas motivate the recommendation for a new information technology organization for Iowa, which we propose in this report.

Three concepts drive the recommendation for an ITD:

Idea 1: **Decision-making power has shifted from the organization to the individual.**

1. People expect government to serve them as the private sector does – online and convenient.

People expect their government to provide information and deliver services in the same way and at the same pace that they have come to expect from the private sector – online, convenient and easy to use.

Idea 2: Convergence of computing and telecommunications and among types of information is occurring rapidly.

2. Technologies are "converging."

Digital information is not distinguishable among data types; all data, regardless of whether it represents text or audio or video, flow equally over the network.

Recognizing the increasing importance of information as both a strategic asset to the corporation and a competitive advantage in the industry, American companies have been establishing the position of CIO.

Idea 3: The CIO is created to be chiefly concerned with information at the enterprise level, from a strategic perspective.

3. The CIO has become a strategist for enterprise information technology.

Success as a CIO depends on personal relationships, organizational placement and the administration's commitment to use information technology as a means of delivering excellent government services.

Michigan's former CIO, John Kost, appearing before the National Governor's Association 1999 Winter Meeting, offered the following list of questions as a guidepost for determining whether the CIO has been given the authority to succeed. Here are the answers to Kost's questions as they pertain to the new Iowa ITD:

1. What sort of relationship exists between the governor and CIO?	The CIO is appointed by and reports to the governor, and the department he manages has rank equivalent to other departments.
2. Is the CIO responsible for the state's information systems?	Yes.
3. Is he or she responsible for telecommunications?	Yes.
4. Is the CIO position a policy or operations role?	Both.
5. Does the CIO oversee project management?	Yes.
6. Is the CIO in charge of IT purchasing?	Yes.
7. How much responsibility does the CIO have for the business process?	The CIO enables business process change with the Department of Management and other departments.
8. Does the CIO have budget oversight on IT projects?	The CIO confers with the Department of Management and is a member of the Information Technology Council.
9. Does the CIO have authority in the area of applications development?	The CIO has some authority for applications development at the enterprise level and establishes methodology and standards for applications development when undertaken by departments.

The recommendation was made by combining the "best of breed" management structures and tempering them with the needs of Iowans as identified by the Transition Team and stakeholders.

In reviewing "best of breed" information technology organizations, three structural models predominate.

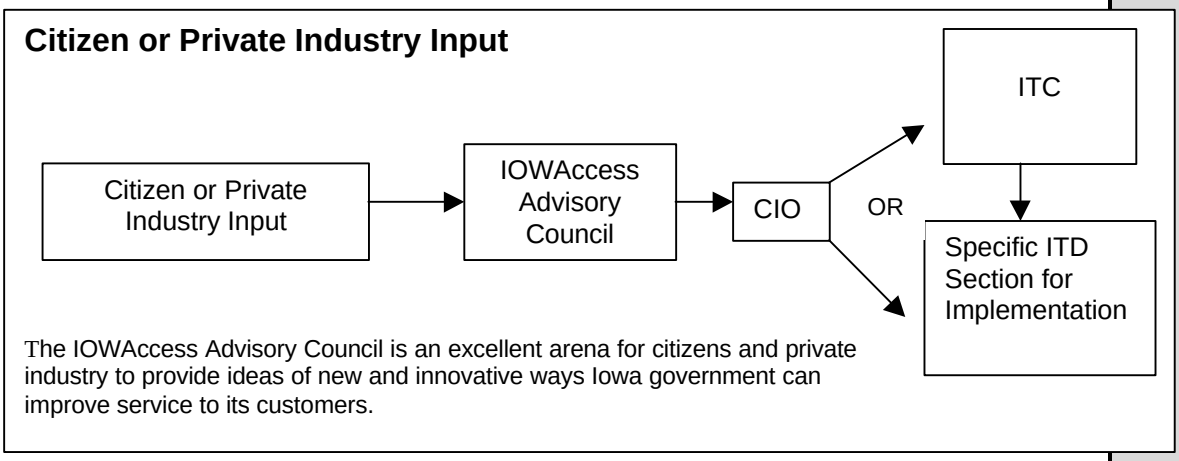
- The CIO is the director of an Information Technology department that provides central computing and telecommunications services, manages procurement of IT goods and services, and has a policy-setting and project oversight responsibility (Washington and North Carolina).
- The CIO has a policy and oversight role (Arizona and Kentucky).
- The CIO as adviser to the governor (Utah).

In making our recommendations for Iowa ITD, we have selected what we believe to be the most effective approaches to IT management culled from other public and private organizations and tried to align these with what was learned from the Transition Team and others.

Section 3:

Innovative and Creative Approaches to Information Technology

The organizational structure we have recommended for the ITD has been designed to nurture innovation and creativity.



Three elements of the organizational structure have been designed to nurture innovation and creativity — the Office of Digital Government, the Office of IT Innovation and the Customer Support Division.

The Office of Digital Government

Attaining the electronic government of the 21st Century is the focus of the Office of Digital Government.

The Office of IT Innovation

The Office of IT Innovation will explore the potentials of emerging technologies. Research and development (R&D) is not a common activity in state government. With new technologies emerging every week, keeping up and buying smart is a daunting challenge. The only way for Iowa to be ready is for Iowa to be early, which requires a controlled process of investigation, testing and systems prototyping – in short, R&D.

The establishment of an IT Innovation Fund is also recommended to support innovative projects which fall outside the scope of mainstream agency missions and funding and the creation, under the auspices of the Information Technology Council, of an IT Innovation Board to administer this Fund to fund the start-up and incubation of innovative applications.

The Customer Support Division

The Customer Support Division is to be a center for best practices in the methods and technologies of systems development. The resulting combination of centralized expertise and decentralized development will give Iowa state government the best of both worlds. This division should be responsible for managing ITD's interactions with customers.

Organizing for Continuous Innovation

All parts of ITD will look for creative approaches to information technology.

While the three organizational structures described above are created for the specific purpose of nurturing innovation and creativity, other parts of the proposed ITD carry within them opportunities for creative approaches to information technology as well. For instance, competency centers will be created on an ad hoc basis by the CIO and the ITC to respond quickly to emerging needs and opportunities. One such center might target project management and include a small band of highly experienced project managers who could be "farmed out" to other government departments as needed. The organizational positions within the ITD of these competency centers will depend upon the extent to which affinities exist between their missions and those of ITD's divisions and offices.

The Operations Division administrator should involve his/her staff and customers in

looking for creative ways to improve operations while reducing cost.

Consolidated purchasing will allow the state to get the best value available and match IT expertise with purchasing decisions.

Innovations in IT Procurement

Through consolidated purchasing, the state of Iowa will be able to develop and consolidate technology evaluation and purchasing expertise. The acquisition of information technology by the state of Iowa should be conducted according to "best value" procurement principles. Also, for acquisitions which the procuring agency and the ITD deem to be highly complex or determine that the optimal solution to the business problem at hand is not known, solution-based solicitation and government-vendor "risk sharing" partnerships should be used.

The state should establish an electronic procurements system.

The ITD should move toward establishing an electronic procurement system for goods and services for Iowa state government.

One of the first CIO priorities is bringing help desks together into a single integrated structure.

The Help Desk

At present, there appears to be a profusion of IT help desks throughout state government, most of them without coordination with the others. One of the first priorities of Iowa's CIO will be to bring all of these together into a single integrated structure. This does not mean putting them all in the same physical location.

They should be networked into a "virtual" help desk having (a) a three-tier hierarchical structure and (b) a single point of contact at the first or "top" tier. Any IT user will have a single "800" phone number to call and/or a single e-mail address to contact in the event of problems or questions. That call or e-mail message will trigger a carefully engineered "incident management process."

Help desks will be structured in tiers to effectively resolve problems.

In many cases, the help desk person should be able to handle the problem right away, but if the problem is more complex or beyond the scope of expertise at this "first tier," the incident will be referred to a "second tier." In extreme cases, it may be necessary to repeat this process, taking the incident into the "third tier," but the responsibility for managing this lies with the first tier help desk person, not the user. The overall goal of this process is effective resolution of a high percentage of "incidents" in the first call. It will also involve a non-trivial commitment of resources, but if it is done properly there will be a significant return on the investment.

Summary

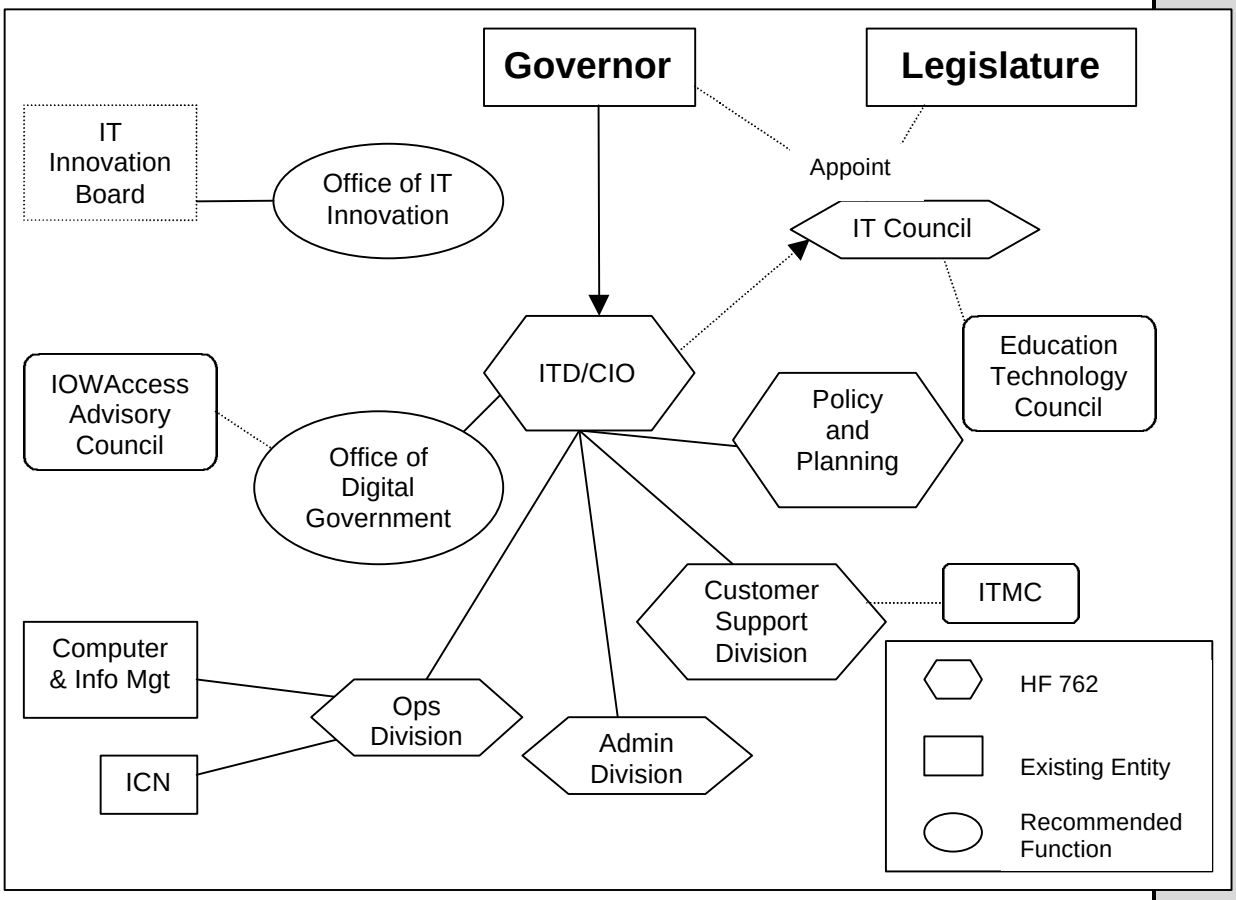
The vision for information technology use within the state of Iowa includes the development of an enterprise (state) wide focus to the application and the customer and an emphasis on using IT as an enabler in business process reengineering efforts. The following chart depicts the change in IT philosophy.

Current	**Proposed**
Agency Focus • Planning done at agency or lower levels • Limited inner-agency system development	Enterprise Focus • Enterprise wide strategic planning coordinated with agency and department plans • Large scale inter-agency projects
Hardware and Software Diversity • Recommendations • High support requirements	IT Architecture and Standards • Economies of scale support opportunities • Common Graphical User Interface
Limited Emerging Technology Skills • Limited and diffused skill base • No sharing of resources	Enterprise Wide Competency Teams • Skill and knowledge transfer • Sharing of technical skills across agencies
Functional Scope • Manual and paper based • Redundant data capture and storage • Vertical (functional) applications	Process Based • Electronic transactions • Shared data, relational databases • Horizontal (integrated) applications

Reference: State of Kentucky IT Strategic Plan

Section 4:

Recommended ITD Reporting Structure



The organizational diagram above shows the optimal reporting structure for the ITD and its associated councils, boards and advisory committees.

A. Appointing Authorities

- The governor appoints most members of the Information Technology Council.
- The Legislature appoints four of its elected members.
- The Chief Justice of the Iowa Supreme Court appoints a representative.

B. Organizational Reporting

- The CIO reports to the governor and serves at his/her pleasure, with confirmation by the Senate. The CIO has rank equivalent to other department heads.
- The administrator of the Policy and Planning Division reports directly to the CIO.
- The administrator of the Operations Division reports to the CIO.
- Reporting to the administrator of the Operations Division are the managers of the Telecommunications group (now ICN), the Computing & Information Management group, the Desktop Support group, and the Help Desk group.
- The administrator of the Customer Support Division reports to the CIO.
- Reporting to the administrator of the Customer Support Division are the managers of the Project Oversight group, the Applications Support group, the Customer Relations group, and the Education and Training group.
- The administrator of the Administration Division reports directly to the CIO.
- The administrator of the Office of Digital Government reports directly to the CIO.
- The administrator of the Office of IT Innovation reports directly to the CIO.
- The manager of each competency center reports to the Division or Office to which it is assigned.

Appointing Authorities:
- *Governor;*
- *Legislature;*
- *Chief Justice of the Iowa Supreme Court.*

The CIO reports to the governor.
The Administrators of the following Divisions report to the CIO:
- *Policy and Planning;*
- *Operations;*
- *Customer Service;*
- *Administrative Division;*
- *Office of Digital Government;*
- *Office of IT Innovation.*

The ITC reports on its work to the governor and Legislature.

C. Governance Reporting

- The Information Technology Council is the principal decision-making body for all aspects of IT in Iowa government. The Council reports on its work to the governor and Legislature.
- The Education Technology Council (ETC) advises the Information Technology Council (ITC) on scheduling and site usage policies for educational users of the ITD.
- The Information Technology Management Council reports on matters of rate-setting and customer service to the administrator of the Customer Support Division and to the Information Technology Council.
- The IOWAccess Citizens Council advises the administrator of the Office of Digital Government and makes recommendations to the CIO on matters pertaining to Internet applications and service delivery.
- The IT Innovation Board exercises independent judgment on the use of the IT Innovation Fund.

Section 5:

Recommendations Regarding Depth and Scope of ITD

For the purposes of this discussion,

> **Information Technology means electronic data processing goods, services, and systems and telecommunications goods, services, and systems, including microprocessors, software, information processing, office systems, any services related to the foregoing, and consulting or other services for design or redesign of information technology supporting business processes.**
> (adapted from North Carolina Senate Bill 222, section 143b-472.40A)

The chief information officer shall be the principal adviser to the governor on information technology policy. The chief information officer shall:

- Develop strategies and policies to support and promote the effective applications of information technology within state government;
- Assess, recommend and implement information technology governance and organization design to include effective information technology personnel management practices;
- Promote effective and efficient design and operation of all major information resources management processes for executive branch agencies;
- Oversee and manage strategic information technology directions, standards;
- Integrate information technology and resources plans with agency business plans;
- Develop, implement and maintain the technology infrastructure of the state;
- Oversee shared state information technology resources and services;
- Perform as the focal point and representative for the state in information technology;
- Facilitate and foster applied research in emerging technologies that offer the state innovative business solutions;
- Establish appropriate partnerships and alliances to support the effective implementation of information technology projects in the state;
- Identify information technology applications that should be statewide in scope, and ensure that these applications are not developed independently or duplicated;
- Establish performance measurement and benchmarking policies;
- Review and oversee large or complex information technology projects and systems for compliance with statewide strategies, policies, and standards, including alignment with state business goals, investment, and other risk management policies;
- Integrate information technology resources; and
- Manage the Information Technology Department and its budget.

Definition of Information Technology:
Information Technology means electronic data processing goods, services, and systems and telecommunications goods, services, and systems, including microprocessors, software, information processing, office systems, any services related to the foregoing, and consulting or other services for design or redesign of information technology supporting business processes.
(adapted from North Carolina Senate Bill 222, section 143b-472.40A)

The CIO is the principal advisor to the governor on information technology policy.

Section 6:

Recommendations Regarding Architecture, Services, Support and Initiatives

This section discusses further recommendations, many of which are based on a review of "best practices" from other states.

The CIO should:
- *develop a statewide information architecture based on standards;*

A. Iowa Statewide Information Architecture

The CIO should establish and maintain an information technology architecture based on standards adopted by the ITC. The technology standards apply to all IT initiatives and activities.

A unified information architecture will allow the state and individual agencies to make better, more cost-effective decisions about deploying technology. Where possible, this architecture should be based on an open, vendor-neutral systems approach for establishing the state's information infrastructure.

Ten Technical Components of Architecture

- Application
- Data
- Groupware/Electronic
- Information
- Integration
- Middleware
- Network
- Platform
- Componentware
- System Management

The CIO should:
- *develop an electronic commerce framework;*

B. Electronic Commerce Framework

It is imperative for any organization to implement a framework that ensures a common "look and feel" for its customers. The purpose of the framework is to:

- Address the citizens' need for a customer-focused interface with government that is consistent, convenient, and secure;
- Enable state agencies to rapidly build electronic commerce applications that offer cost-effective and responsive services to citizens;
- Leverage and align with the statewide technical architecture.

The Information Technology Department, through its Office of Digital Government, should develop and implement a statewide framework for electronic commerce, which would provide a constituent interface for citizens and businesses, intergovernmental use, and allow the state to offer an increasing array of internet-based commerce services. Significant benefits are obtainable from sharing a common electronic commerce infrastructure:

- Synergy
- Leverage
- Economies of scale
- Critical mass

The CIO should:
- *implement a statewide training and support structure;*

C. Statewide IT Training and Support

The CIO must be the lead advocate for an ongoing program of technology awareness and education. The Iowa Information Technology Department should launch an ongoing series of technology education and awareness activities for the benefit of its professionals, executives and policy-makers.

- The ITD should develop an inventory of required IT skills for the state, correlate the required skills with the skill sets that currently exist and identify skills that will be required by the state in the future.

- The ITD should also develop an ongoing training curriculum that will address gaps which may exist within the inventory.

- Skill development should be a required part of all IT employees' performance reviews and be one of the factors considered for merit increases.

- The ITD should create a partnership with the Higher Education Coordinating Council and Iowa private industry to develop curriculum within Iowa schools which will meet the IT skill needs of both the public and private sectors.

D. Retention of IT Staff

In today's IT job market it is difficult to retain skilled employees. The ITD should create a task force in conjunction with the Iowa Department of Personnel to identify recruitment and retention strategies that can be implemented to ensure that Iowa government has the skill sets necessary to complete its mission.

The CIO should:
- *develop IT worker recruitment and retention strategies;*

E. Enterprise Seat Management

State governments across the United States are following a trend initiated by large corporations: outsourcing of non-core competencies. Seat management refers to an asset management program focused on the components that make up a personal computer. Within the information technology arena, the management of the desktop computing environment is not a core competency for most organizations. Many states are turning to private companies to perform these tasks for them. The Information Technology Department should study the return on investments available through the implementation of an enterprise seat management program.

The CIO should:
- *explore return on investment options in outsourcing non-core competencies; and*

F. Enterprise Information Technology Security

The Information Technology Division should create appropriate enterprise security policies and implement security measures/technologies to ensure the integrity of Iowa's information assets.

The CIO should:
- *implement enterprise security policies to preserve information integrity.*

Section 7:

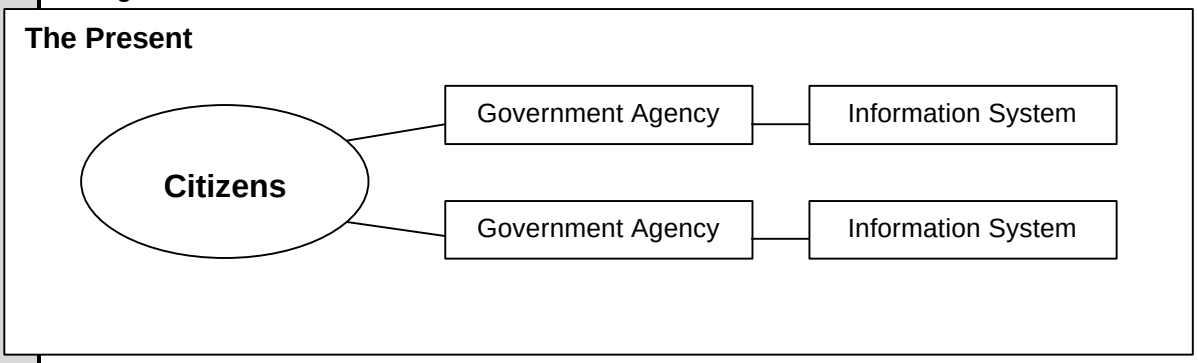
Relationships Between the ITD and Other Entities

ITD will be an agent of change.

A. Other State Government Agencies

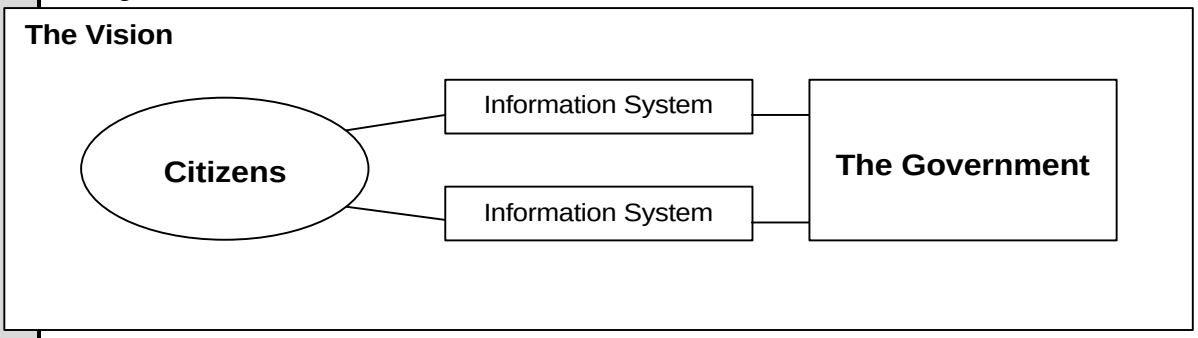
The role of ITD will change dramatically as government information systems move out of the back office and become the "face of government" for many citizens. ITD will be an agent of change.

Figure 7-A



Information systems have traditionally provided "back office" services to government agencies. Each agency has had its own information system, based upon its mission, constituency, and ways of doing business.

Figure 7-B



The federal government, local government and the private sector are all potential partners.

B. Federal Government

ITD will be a focal point and will eventually become an inter-governmental network providing citizen access to federal, state, and local agencies. ITD will work with the federal government on the technologies, systems and standards that will allow citizens to utilize related state and federal services through a common channel.

ITD should provide certain services to local agencies on a fee-for-service basis.

Local Government

Smaller towns and rural counties in Iowa are not as sophisticated as the state in the e-government arena. ITD can extend a helping hand. This should include providing certain ITD services to local agencies on a fee-for-service basis. In the longer term, existing restrictions on who may use ITD's services should be removed so that any governmental or quasi-governmental entity operating in the state may contract with ITD for information technology services. Nothing in this recommendation is to be construed as expanding the authorized users of ICN.

The following are the reasons why this should be done:

- Provide additional economies of scale;
- Help ensure that at least a minimum level of integrated e-government is available to citizens anywhere in Iowa;

- Bring Iowa government up to 21st century standards; and
- The cities and counties said that they want this and need it.

The Private Sector

ITD should be a very good and potentially very large customer for many private companies providing IT products and services in Iowa. On behalf of the agencies it serves, ITD can negotiate purchase prices and contract terms that ensure "the best bang for the buck." We also recommend ITD exploit the use of "master contracts" covering multiple purchases over a fixed period of time.

ITD should be a customer for private companies.

ITD can also serve as a conduit through which advanced technologies and concepts from the private sector can be brought to bear on the problems of government and through which private companies can learn of government needs which might afford opportunities for them. In some cases, ITD may be able to facilitate the formation of public/private partnerships which share the risks as well as the rewards of innovative endeavors.

Private sector technologies and concepts can be brought, through ITD, to help solve some problems of government.

The ITD should adopt and enforce standards. Standards can help reduce costs and achieve economics of scale.

Section 8:

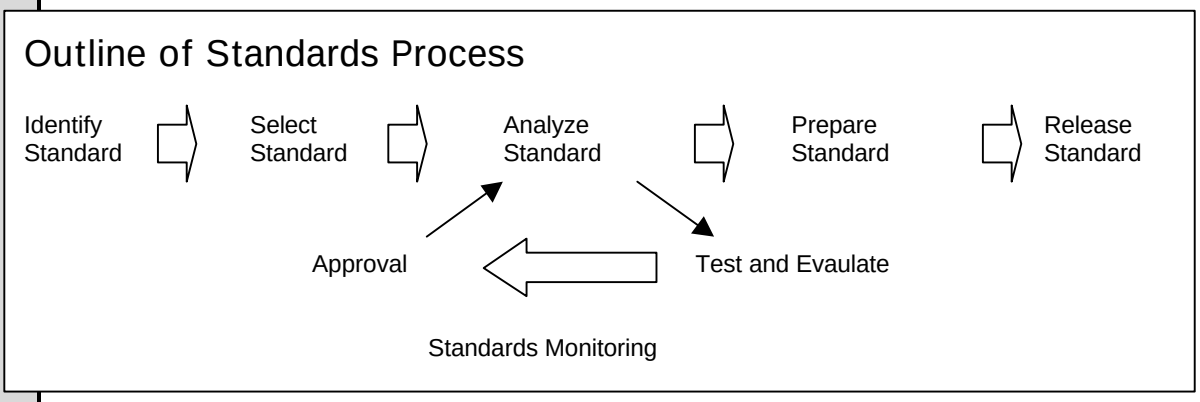
Scope of ITD Standards and Services

Standards enable communication between agencies, create a single face of government for citizens, provide for economies of scale in IT purchases, and facilitate consolidated help desks and IT support services.

Standards for the definition and use of data are important in a large complex environment such as state government. Data definition and usage standards are essential to consistent and accurate data reporting and analysis.

A well-defined set of standards can reduce support costs and provide economies of scale while at the same time allowing the needed level of flexibility. Support costs can be minimized by setting standards for desktop configuration, software, network connections and backup procedures. Training costs can be reduced substantially by standardizing certain applications that will have widespread utilization.

The Information Technology Department should adopt and enforce enterprise standards for the use of information technology in the state of Iowa. The planned and budgeted transition to enterprise standards should take into account the current environment and the priorities and business directions of agencies.



Under the proposed structure, the Information Technology Department will be required to provide specific services to its customers.

Function	Ops Division	Admin Division	Cust. Support Division	Policy and Planning	Office of IT Innovation	Office of Digital Government
Network Services						
Voice	x			x		
Long Distance	x			x		
Calling Cards	x			x		
PBX	x			x		
Line Management	x			x		
Toll Free Calling	x			x		
Voicemail	x			x		
Voice response	x			x		
Conferencing	x			x		
Data Transmission						
WAN transmission	x			x		
LAN transmission	x			x		
Secure transport	x			x		
Hardware components	x			x		
Protocols	x			x		
Internet/intranet	x			x		
Mainframe access	x			x		
Firewall	x			x		
Video						
Full motion and compressed at room level and desktop	x			x		
Network Management						
Operations center, including trouble response and circuit management	x			x		
Network maintenance	x			x		
Resource management & scheduling	x			x		
Cable and cable installation	x			x		
Information Processing Data Center Operations						
Mainframe systems	x			x		
Mainframe storage	x			x		
Output services	x			x		
Operating environment	x			x		
Software support	x			x		
Facilities	x			x		
Server management	x			x		
Remote access	x			x		
Back-up data services	x			x		
Disaster recovery	x			x		

Function	Ops Division	Admin Division	Cust. Support Division	Policy and Planning	Office of IT Innovation	Office of Digital Government
Desktop Support						
Configuration management	x			x		
Mobile computing	x			x		
Peripheral equipment	x			x		
Imaging	x			x		
Mail and messaging	x			x		
Office suites	x			x		
Geographic Information Systems						
Drawing and Charting			x	x		
Publishing			x	x		
Internet Page Authoring				x		
Language and authoring tools				x		x
Naming conventions & domains				x	x	x
Electronic commerce				x		x
Secure signatures & envelopes				x		
System Development & Project Management						
R&D and innovation laboratory				x	x	
Evaluations of Internet technologies					x	
Pilot projects to develop prototype applications					x	
Prototype development of intergovernmental applications					x	
Business case justification			x			
Requirements analysis and data modeling			x			
Data warehousing			x			
Risk assessment & project monitoring			x			
Systems integration & cross-agency system design			x			
Customer Support						
Customer service center			x	x		
Training and education			x	x		
Applications planning & advice			x	x		
Technology demonstrations			x	x		
Billing		x		x		
Service complaint resolution			x	x		
Service agreements		x	x	x		
Customer satisfaction surveys			x	x		
Procurement		x		x		
Vendor qualification		x		x		
Public Information						
Citizen access				x		
Legislative & media liaison				x		x
Public communication				x		

Section 10:

Information Technology Convergence

The basis for the "great convergence" predicted in information technology in coming years is the growing encroachment of digitization into all forms of media: numbers, text, drawings, half-tone and full color photographs, video, sound, touch and feel. Only a few niche areas of telecommunications (e.g., AM and FM radio) will remain outside the digital sphere.

Technologies are converging – only AM/FM radio will be outside the digital spectrum.

Convergence of video and broadcast media, the Internet and data systems within state government will need to include ICN, IPTV and ITS, along with departments and agencies that are developing innovative solutions to meet customers needs.

As technologies converge, so should the management and administration of those technologies.

The ITD should include identifying the customer's need and expectations. Then, rather than using three departments to gather and process the information, a consolidation of the various groups to do backwards mapping from the information needed to the processes that applicants need from start to finish, using technology solutions to reduce the time and effort required, would be suggested.

Stakeholders can be divided into three C's: the Customer (who pays), the Consumer (who uses), and the Constituent (who cares). Consideration should be given to each of these stakeholder groups when new data needs are identified.

The ITD should pay close attention to three stakeholder groups – the customer, the consumer and the constituent.

Section 12:

Challenges and Barriers to Implementing Recommended Organizational Structure and Recommendations for Overcoming Them

There are a number of difficult policy questions the governor and Legislature still must address:

Should the Transition Team proceed to implement the recommendations for structuring the CIO function and consolidating information technology services, it would have taken an essential step in preparing Iowa government for the digital environment of the next century. Nevertheless, reorganizing the information technology functions still leaves a number of difficult policy questions unanswered. These questions need to be resolved by a collaborative process involving legislators, the governor and his administration, and other stakeholders throughout Iowa.

- *ISP funding (direct or indirect);*

1. Is the appropriate funding strategy legislative appropriation, recovery, or both?

Information technology utility services should be billed directly to the customers under the provisions of service agreements negotiated with the customers (with the exception of ICN funding until that funding policy can be reviewed by the governor and Legislature). We further recommend that depreciation be collected in an enterprise fund used for asset replacement, and that the strategic activities of the CIO function (including the Policy and Planning Division) be funded through direct appropriations from the Legislature.

- *R&D funding;*

2. What is the role of R&D in delivering 21st century services, and how should R&D be funded?

Research and development has rarely been a funded activity of state government. How should new development be funded? R&D, which explores emerging technologies in relation to real business problems should be made an explicit function through the establishment of an IT Innovations Office and be funded through an innovation fund.

- *Standards mandate;*

3. Is the state of Iowa prepared to adhere to information technology architecture, and are the departments willing to conform to established technology standards?

The state of Iowa cannot achieve its vision of a technology-supported electronic government by allowing every department to establish its own technology standards. The CIO should establish and maintain an information technology architecture, based on standards adopted by the ITC, applied to all IT initiatives and activities. Further, the governor should direct all departments of Iowa state government to adhere to these standards. Such adherence could be enforced through the legislative budget process.

- *E-government prioritization;*

4. How will electronic government, electronic commerce, and Internet applications be developed and managed?

Throughout this report we have referred to the importance of an enterprise view, a strategic vision, and a standards-based implementation. Digital government (including IOWAccess) should be a central focus of the CIO function. The CIO should coordinate all internet-based applications for development standards, "look and feel" branding, citizen ease of use, and interdepartmental information aggregation.

- *Role of outsourcing;*

5. What are core information technology services, what is core competence in information management, and what is the role of outsourcing?

With the restructuring of the information technology functions, success depends on determining what government should do for itself and what the private sector

can do for the government. Where the business case can be justified on the basis of cost or skills, outsourcing to the private sector of designated information technology service functions should be a standard business process.

6. What role do the departments play in the new information technology organization?

• *Role of departments.*

The department director is responsible for the performance of his/her department and, consequently, is responsible for how well the technology is used to serve the constituency. Therefore, the role of the department director needs to be clearly established. Departments should be recognized as owners of the state's information and the business drivers for new technology initiatives. Applications development should be aligned with and responsible to the program functions of the departments, whether the applications are developed by the department, the central service agency, or the private sector. Further, expert private sector firms, under strong contract provisions which attach payments to deliverables and mitigate risk to the state, should develop complex information technology projects.

Section 13:

Recommended Best Practices

The recommendations in this report reflect best practices found in other states and in the private sector.

In addressing the development of the new ITD, recommendations have been based on a range of best practices. Below is an index of best practices detailed earlier in this report:

1. IT Innovation Fund
2. Competency Centers
3. Enterprise Architecture
4. E-commerce Framework
5. IT Training and Support
6. IT Awareness Program
7. IT Staff Retention
8. Enterprise Seat Management
9. Enterprise Standards

The remainder of this section outlines additional best practice recommendations.

Application Development Certification is recommended to formally review and authorize major IT projects.

A. Best Practice - Application Development Certification

To ensure the successful planning and implementation of significant information technology initiatives, we encourage the state of Iowa to create an Information Project Certification Process, a process of formal review and authorization of IT projects. The Information Technology Council should establish a procedure to issue certification of any state agency information technology project that requires or is expected to require the expenditure of funds in excess of $500,000, whether the project is undertaken in single or multiple phases. The certification shall be issued when the ITC determines the project complies with ITC's and statewide information technology policies, standards, and procedures.

The ITC should report each certification to the Department of Management and to the Chairs of the appropriate Legislative Committees. As part of this process no state agency, unless specifically exempt by appropriate authority, may allocate or expend funds in excess of $500,000 on any information technology project without prior ITC certification. If at any time a certified agency information technology project is not in compliance with ITC policies, standards, or procedures, the ITC may suspend project certification and report the suspension to the Department of Management and to the Chairs of the appropriate Legislative Committees.

Information Technology Portfolio Management would integrate agency planning, budgeting and expenditure processes.

B. Best Practice - Information Technology Portfolio Management

The Information Technology Department should establish a procedure in coordination with other appropriate state departments (such as the Department of Management) to integrate agency strategic and business planning, technology planning and budgeting, and project expenditure processes into the ITD information technology portfolio-based management.

C. Best Practice - Risk Assessment

The Information Technology Department should implement a risk assessment model utilized by each agency to determine the level of risk and oversight required for IT projects. The Information Technology Department should create a list of reserved technologies. Technologies on this list will always have the highest oversight level because of their unique relationship to the statewide infrastructure and because their acquisition and deployment merit careful coordination. Items to include are mainframe computers, enterprise servers, wide area networks, and electronic government applications.

In cooperation with state agencies, the ITD should also conduct and maintain a continuous inventory of each state agency's current and planned investments in information technology, a compilation of information about these assets and the total life cycle cost of these assets.

The ITD should develop and implement state government-wide standards, processes, and procedures for the required inventory management of this state-wide information technology portfolio. State agencies should be required to participate in this information technology portfolio management process and required to comply with the standards and processes established by ITD and approved by the ITC.

A risk assessment model should be used by each agency to determine the level of wish and oversight required for IT projects.

Summary

Iowa is to be commended for launching this difficult reorganization initiative. It will not be an easy or simple task. Tough political, organizational and technical issues remain. However, in moving forward in establishing a CIO, Iowa will effectively position itself to participate as a leading “digital state.”

In our recommendations, we have proposed an organizational structure that will allow the state to build and execute a coordinated vision that will effectively harness new technologies to best serve the needs of Iowa and its citizens. We have proposed a transition strategy that will allow the development of statewide IT leadership and strategy while concurrently consolidating and upgrading the state’s information service and telecommunication delivery functions.

Through these changes it is expected that Iowa will see a greater customer focus and responsiveness emerge from its IT function. Citizens will benefit from the decreased confusion that is a result of a coordinated approach to electronic service delivery. Iowa government will not only impress its citizens but also increase the efficiency with which it operates.

The incubation of new digital technologies through research and development will provide Iowa with the test bed necessary to show future leadership in service delivery. Iowa will provide itself the proving ground necessary for moving up in the benchmarks used to measure how well a state is doing with the implementation of digital technologies. Ultimately, the state of Iowa will emerge with a focus toward implementing the next generation of government service delivery to its citizens. The vision of a new Iowa will allow its citizens and future generations to achieve a quality of life, both at work and at home.

Ancillary Report & Recommendations

Submitted by the Information Technology Transition Team
October 15, 1999

The Information Technology Transition Team received and reviewed the full report, *Organization Structure of an Information Technology Department,* submitted by the Center for Digital Government. As a product of their deliberations, the Transition Team developed this *Ancillary Report & Recommendations* which includes some alternative recommendations as well as highlighting key points of the full report with which the Transition Team fully concurred.

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